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1 RECORD OF ORAL HEARING

2 UNITED STATES PATENT AND TRADEMARK OFFICE

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6 BEFORE THE BOARD OF PATENT APPEALS
7 AND INTERFERENCES
8

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10 Ex parte JOHANNES G. BEDNORZ and CARL A. MUELLER
11

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13 Appeal 2009-003320
14 Application 08/479,810
15

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17 Oral Hearing Held: Wednesday, June 10, 2009
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21 Before BRADLEY R. GARRIS, BEVERLY A. FRANKLIN, and
22 LINDA M. GAUDETTE, Administrative Patent Judges
23
24
25

26 ON BEHALF OF THE APPELLANTS:

27
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1 The above-entitled matter came on for hearing on Wednesday,
2 June 10, 2009, commencing at 1:58 p.m., at the U.S. Patent and Trademark
3 Office, 600 Dulany Street, 9th Floor, Hearing Room A, Alexandria,
4 Virginia, before Victoria L. Wilson, Notary Public.

5 PROCEEDINGS

6 THE USHER: Calendar number 26. Appeal number 2009-
7 3320. Mr. Morris.

8 JUDGE GARRIS: Thank you.

9 DR. MORRIS: Thank you. My name is Daniel Morris.

10 JUDGE GARRIS: Good afternoon.

11 DR. MORRIS: This is Lauren Morris, my daughter. She
12 wanted to attend.

13 JUDGE GARRIS: Well, Ms. Morris, welcome to the Board.

14 MS. MORRIS: Thank you very much.

15 JUDGE GARRIS: We are pleased to have you here.

16 DR. MORRIS: I told her to be prepared for you all to make me
17 look bad.

18 JUDGE GARRIS: I don't think that's going to happen, Dr.
19 Morris.

20 DR. MORRIS: I want to thank you for giving me the
21 opportunity to speak to this case, which is obviously very complicated, has
22 had a very long history.

23 JUDGE GARRIS: It is a very important case. We understand
24 that.

25 DR. MORRIS: Yes.

1 JUDGE GARRIS: Before we begin discussing it, I wonder if
2 you might have a business card you could give our court reporter, please.
3 We also understand, Dr. Morris, that you have asked for some extra time and
4 we would be happy to give you a reasonable amount of extra time beyond
5 the 20 minutes that is typical.

6 And so with that, please begin, sir.

7 DR. MORRIS: The first issue which is the claim of priority
8 that we made, I don't really think anything needs to be done on that other
9 than to acknowledge that we made a claim of priority to the form document.
10 The Examiner didn't agree and it isn't an issue that needs to be decided on to
11 decide the issues in this appeal. The Examiner didn't quite say that. That's
12 why I have put that in the Appeal Brief.

13 I do want to point out that the claims in this application are not
14 chemical composition claims, they are really directed to a circuit element in
15 use which has a superconducting element that it is carrying a
16 superconducting current.

17 The reason why I point that out is the examination primarily
18 appeared to treat the claims as though they were chemical composition
19 claims. There are three means-plus-function claims which are directed to
20 the means for conducting a superconducting current, which is claims 3 --
21 438, 440 and 536, which are not allowed, but there are claims which are
22 allowed which are directed to the specific embodiments which are described
23 in the claims and it seemed inconsistent to not allow those claims under In re
24 Donaldson when the claims of a specific species have been allowed. Those
25 claims have been rejected for lack of enablement.

1 JUDGE GARRIS: Well, let me ask you about that because I
2 want to make sure we understand what your position is. And let's look at
3 one of your means-plus-function claims so that we can have something
4 concrete to discuss.

5 How about -- did you say claim 438?

6 DR. MORRIS: Yes.

7 JUDGE GARRIS: Would that be a good one to look at? In
8 relevant part, that claim is directed to an apparatus comprising a means for
9 conducting a superconducting current at a temperature greater than or equal
10 to the 26 degrees Kelvin. So why is it inconsistent for the Examiner to have
11 rejected that claim for nonenablement even though more specific claims
12 directed to a particular species have not been rejected for nonenablement?

13 DR. MORRIS: The -- it is my understanding of the claims that
14 have been allowed so far cover those specific examples in the application
15 which have been specifically reported as having been measured and specific
16 chemical type compositions.

17 The -- in In re Donaldson, means plus function looks to the
18 specific examples in the application for support of what that language
19 "means plus function" is directed to, and it would seem to have essentially
20 the same scope as those claims which have been allowed.

21 The difference, of course, with the means-plus-function claim is
22 that 112 paragraph 6 includes the language "equivalents thereof," which
23 should also apply to those claims which are not in means-plus-function form
24 but the statute explicitly requires it to apply to the language that's in means-
25 plus-function form.

1 So there is a difference but they're essentially directed to the
2 same types of examples and if the claims which specifically recite the
3 examples are found to be enabled, it would seem to me that these claims that
4 are in means-plus-function form for that element should also be found to be
5 enabled.

6 JUDGE GARRIS: Well, I guess the Examiner's position on
7 that would be that, in fact, the means-plus-function claims, such as claim
8 438, is not in fact of the same scope as an allowed claim which recites a
9 particular species. And I think that's what you were saying when you said
10 the sixth paragraph of 112 includes "equivalents thereof," not just the
11 structure or materials that are disclosed in the spec but also the equivalents
12 thereof.

13 DR. MORRIS: Yes. So, in that sense, it may -- under some
14 circumstances it could be broader than the claims that are directed to specific
15 embodiments, depending on whether or not the -- for those claims which are
16 not in the means-plus-function form, you would be relying upon the doctrine
17 of equivalents, which is not part of the patentability determination.

18 JUDGE GARRIS: That's right.

19 DR. MORRIS: But the 112 paragraph 6 equivalents is,
20 obviously. So, in that sense, it is probably a little bit broader.

21 But the Examiner has not, as I have said many, many times in
22 the Brief, to my view, shown that persons of skill in the art cannot make
23 those particular species where he -- he says that he is agreed that those
24 particular species are enabled, he has not shown -- the Examiner has not
25 shown that the equivalents cannot be made by a person of ordinary skill in

1 the art as of the first filing date with what is known to a person of ordinary
2 skill in the art.

3 So I think that those equivalents are enabled for the same
4 reason that the specific species that have been allowed are enabled.

5 JUDGE GARRIS: Well, of course. I understand that you think
6 all of these claims that are on appeal today are enabled.

7 DR. MORRIS: Yes, and I will go to that because I really
8 strongly believe it.

9 JUDGE GARRIS: Of course you do. And we understand that
10 and we are now at a good segue for you then to proceed to a discussion of
11 the other claims, focusing, if you would, maybe on the broader claims on
12 appeal, and explaining to us the Examiner's position and why you believe
13 that it is incorrect.

14 DR. MORRIS: Well, first of all, the Examiner has taken the
15 position of deeming claims enabled which are of a particular species. It is
16 generally those particular species which are reported as having been made
17 and experimentally measured.

18 But there -- I have gone through in great detail some of the case
19 law on enablement and it is clear that the -- a patent applicant isn't required
20 to be limited to the specific species that they have shown or demonstrated.

21 So long as persons of ordinary -- so long as they have the
22 language in the specification to support the claim based on written
23 description, if a person of ordinary skill in the art is capable of making
24 species that come within the scope of those claims, those claims should be
25 enabled.

1 The -- In re Fisher is one of the cases that's cited, I think most
2 frequently, for finding chemical claims not enabled when they are of broad
3 scope.

4 Now, I went through a very detailed analysis of In re Fisher
5 because it is cited over and over again by the Board, by the CAFC, by
6 district courts. The In re Fisher has the specific issue that it states in the case
7 that only one type of chemical composition could be made.

8 I think it was on the 39th site of that molecule, there was some
9 substituent added and there was no evidence that they could be placed
10 anywhere else, yet, the claim that they presented would have presumably
11 required it to be in any one of those -- any position on this molecule. If you
12 read the case closer, that seems to be the reason why that claim was not
13 found enabled.

14 In the case under appeal, what's different here is the techniques
15 for making ceramic materials is one of the oldest of the technologies that's in
16 existence. I mean some of this stuff has its history in ancient times, people
17 mixing materials up and making pots.

18 Well, to fast forward thousands of years to today, when you
19 make high-tech ceramic materials, you take -- you crush up inorganic
20 compounds, throw them into some big pot and put a ball mill on them and
21 heat the stuff up and grind and grind and grind and you push the stuff into
22 place. Eventually, the atoms find the place which is the lowest energy state
23 for that combination of constituents and you get some crystalline structure.

24 The chemistry -- I have cited the book by Poole from 1988, one
25 from 1995, and one from 1996. One of those clearly says that the chemistry,

1 although complex, does not have to be understood. And that was one of the
2 reasons why so much work was done in such a short period of time after the
3 Applicants here first announced their discovery.

4 And I have submitted affidavits to that. The Examiner has not
5 cited anything to shed doubt on that.

6 JUDGE GARRIS: Well, I think, in fact, the Examiner, from
7 my reading of the Answer, seems to agree that the principles or techniques
8 used to make the compositions that are required by your apparatus claims on
9 appeal are well-known.

10 DR. MORRIS: Yes.

11 JUDGE GARRIS: And, in fact, your specification on page 8,
12 for example, clearly refers to known principles in ceramic fabrication are
13 used to make the compositions that are disclosed there.

14 DR. MORRIS: Yes.

15 JUDGE GARRIS: You even have, I think, one or more claims
16 that recite –

17 DR. MORRIS: Yes, explicitly recite that language.

18 JUDGE GARRIS: And so the Examiner really isn't disagreeing
19 with that. I think the Examiner understands that it is within the skill of an
20 artisan to make compositions of these types. What the Examiner considers to
21 be non-enabled is for the artisan not just to make these compositions but to
22 be able to make without undue experimentation compositions within the
23 scope of your claims that would possess the characteristic required by your
24 claims, namely, that they be superconductive at the relative high
25 temperatures.

1 DR. MORRIS: Yes, that's -- that's what Examiner has said and
2 I agree that's what the Examiner has said.

3 In response to that, and I have argued this rather extensively, I
4 don't believe that enablement -- that there is case law that supports that to
5 satisfy enablement, you must know in advance all species that come within
6 the scope of your claim.

7 I have argued, and I think I'm correct on this, that the term
8 "predictable," as used in the patent law, really means determinable in some
9 way, not that you sort of automatically know it. That's not what
10 "predictable" means, without any work.

11 If the -- the language "undue experimentation" means that you
12 can determine what other species there are that come within the scope of the
13 claim, and so long as you can do that with what was taught by the Applicant,
14 that that's all that enablement requires. It doesn't require that you know in
15 advance what those species are.

16 Now, that is -- probably you have a little bit of doubt about
17 maybe my asserting that but I have gone through some of the case law quite
18 closely to try -- I found no case that says that you must know in advance.

19 The term "predictable," I think, was introduced by the CCPA a
20 very long time ago in response to different language that was used that it
21 didn't like, which was that other species would be obvious.

22 There are some very old cases where it says we don't like that
23 language that other species that would come within the scope of the claim
24 would be obvious. We prefer predictable and non-predictable. But it is hard
25 to find a case that describes what "predictable" means.

1 There is no case that I could find that said "predictable"
2 requires that a theory exists in order to be able to determine other species.

3 And even in this instance, and I have had this affidavit from a
4 Dr. Newns, even if you had a perfect theory in this type of subject matter,
5 this is very complex theory. It isn't something you do on the back of an
6 envelope or you think about.

7 To crank through one of these theoretical types of calculations
8 may be more work than actually going and making the sample and testing it
9 and see if it works because they -- you have got many atoms in these
10 particular materials of different types. Each one of these is heavy elements
11 which have many electrons. You have a whole collage of all these
12 interactive things to take into account and they can only be done
13 approximately. And the formalisms are complicated.

14 And so I don't believe that "predictable" can possibly be -- be
15 intended to mean that you sort of just know everything that comes within the
16 scope of the claim. If that were the case, then I think the undue
17 experimentation language would never have been adopted. It wouldn't have
18 been needed because you would just automatically know.

19 But the courts --

20 JUDGE GARRIS: Let's say when the phrase -- when the term
21 "unpredictable" might be used to describe a technology, let's say that
22 perhaps they mean something like -- I guess you would argue that
23 "unpredictable" means it is undeterminable --

24 DR. MORRIS: Right. That's --

25 JUDGE GARRIS: -- cannot be determined.

1 DR. MORRIS: Right.

2 JUDGE GARRIS: But I'm not sure I follow that because
3 assume the invention is, in fact, something that is unpredictable; well, after
4 the invention, it has -- the mere fact that the subject matter has been invented
5 proves that the outcome is -- has been determined to be successful.

6 DR. MORRIS: Well, for that particular -- in this context -- let's
7 suppose in this context there was no theory. Now it turns out there really is a
8 theory in superconductivity. When this first was discovered, could
9 somebody right then apply that theory as it was to show why these things
10 were superconductive at that temperature?

11 No. It required a great deal of work of very highly skilled
12 people, theorists, and it really was -- there is some progress on that now but -
13 - and it is based on the BCS theory, which is the same theory that was in
14 existence at the time when Applicants made the discovery to explain why
15 things were superconductive at lower temperatures.

16 The -- so -- but if we go on the -- that they make the discovery
17 and now they can't immediately go run out and do a theoretical calculation
18 and immediately know what might be another species, what they have done
19 is they have laid out properties of what they feel the materials will have,
20 other ones will have, like layered, cross-guide-like are a few of them. There
21 is a whole set of properties that they have set out as the properties that these
22 materials will have. It turns out that they all have them.

23 One of the Poole references, I think it is the Poole 1995
24 reference, explicitly says, quotes from their paper, it says this is what they
25 said they would be and they have turned out to have those properties. The --

1 so in -- highly skilled -- this is an area which has a -- where the level of
2 ordinary skill in the art is relatively high for people who make these kinds of
3 materials. Consequently, they have good intuition as to what other materials
4 will have similar properties.

5 And even the Schuler article cited by the Examiner in support
6 of his position says that experimental intuition or physical intuition led from
7 the Applicant's discovery to the other materials in that class of high Tc
8 superconductors.

9 That's part of their teaching and that's part of the ordinary skill
10 in the art.

11 Besides the, you know, mixing the stuff in these ball mills and
12 at elevated temperatures, what other types of materials will have these
13 properties is based on that experimental intuition, which has turned out to be
14 correct. What they said in their -- in their application has turned out to be
15 correct.

16 So from that point of view, I think that this art is predictable in
17 the experimental sense because they could say what -- what were the other
18 types of species that should be tried.

19 Now, will every single one of them have the high Tc property?
20 No. You test it -- you make it by known means and then you test it by
21 known means.

22 In fact, there is in the concurrence -- in Judge Newman's
23 concurrence in *In re Watts*, she clearly says, "by experiment or theory."
24 Now, that's a concurrence and not the opinion but she clearly says there --
25 and there are other cases that I have cited in the Brief and in the Reply which

1 have that same property that it is -- for instance, the Supreme Court decision
2 from the early -- early 20th century -- the name escapes me for the moment --

3 JUDGE GARRIS: I think I remember seeing that in one of
4 your replies but the name escapes me at the moment, as well.

5 DR. MORRIS: It is at the end of the brief. It is the very last
6 section. It is actually cited in *In re Angstadt*, which is sort of the -- one of
7 the key cases in the chemical area for enablement, cites the Supreme Court
8 decision -- I have that here. I'll just -- it is on page 227 of the brief.

9 It starts -- let's see -- *Mineral Separation v. Hyde*. *Mineral*
10 *Separation v. Hyde* has some similarity to this case. Now, that was where
11 you had ores and you want to separate the ore from the stuff that was not the
12 impurities and there was some kind of oil flotation process.

13 The -- in that patent, there was a few examples given but they
14 claimed ores, all ores. The Supreme Court clearly says that doing
15 experiments to determine whatever the optimal combination of constituents
16 in order to do the separation, that was okay, that was all right for enablement
17 and it -- it also acknowledges that some may not work.

18 Well, that's okay, too, because how to do this was known. If
19 you were not to allow experimental determination, then in the -- in this
20 *Mineral Separations v. Hyde* case, they would have a claim limited to a very
21 small number of species or they would have to spend an enormous amount
22 of time doing lots of experiments, which is the same thing here.

23 The inventors here could have, when they made their discovery,
24 decided not to publicly make it aware and they could have spent from then
25 until now testing every single thing and filing their patent application after

1 they thought they had covered everything. Nobody may ever have realized
2 that these things were superconductive.

3 Now, there is a policy in the -- in the Constitution -- the
4 constitutional policy of the patents is to promote the progress of useful arts
5 and Mineral Separation cites this policy that if you don't encourage people to
6 disclose early, you are not going to promote that but you also have to -- you
7 cannot shortchange an inventor who discloses by not giving him a claim that
8 can be easily avoidable.

9 Like, for instance, in this case. If nothing more than the claims
10 that are allowed in this case were ever allowed, it wouldn't be worth paying
11 the issue fee because it is avoidable, unless you -- you would be able to
12 make a credible argument under Doctrine of Equivalents that something else
13 was an equivalent.

14 But put that aside, there would be no literal infringement as you
15 can just easily avoid it.

16 So there, really, by the Examiner's line of argument -- if I were
17 to actually -- if this happened again, after having gone through this, I would
18 tell him [i.e., the inventor(s)] don't -- don't disclose it, maybe it is really
19 important, just work on it yourself for a while and see whether or not what
20 happens because that would be -- that would end up with a better result
21 because if you -- at least under the law now, if you were diligent and kept
22 your notes straight, you would be able to swear behind anybody else who
23 might stumble upon it after you and after who knows how many years you
24 would get -- you would just accumulate all of the information.

1 But that's not what they did. Now, they -- shortly after they
2 discovered it, they made it known and there was an explosion of activity
3 after that immediately and within -- within 18 months, I think they were
4 granted a Nobel Prize on this topic.

5 Now, they were given the Nobel Prize on this and their material
6 was only about 8 degrees kelvin higher than the other highest Tc material.
7 Other species which come within the scope of the non-allowed claims but
8 which really are essentially the same thing have much, much higher Tc than
9 -- than 8 degrees. It is much higher than -- it is more than -- they go up to
10 125 degrees. The -- none of those people won the Nobel Prize.

11 That, I think, itself, is a fact which has some meaning, because
12 they didn't discover in the eyes of the people who choose Nobel Prizes
13 something which was significantly different from what these people did
14 when they made this discovery and -- and the Poole books, if you look at my
15 arguments, say -- they acknowledge these things are made -- that they have
16 the same properties, physical properties, as the ones that they initially
17 discovered.

18 That's the reason why, I think -- I think the Mineral Separations
19 case is a case which is key in this analysis because I think it is the case -- the
20 Supreme Court case that I think in many respects is the fundamental case of
21 the enablement discussion in -- certainly is in In re Angstadt because it cites
22 it explicitly.

23 The decision in In re Angstadt gave a broad scope of
24 enablement to an area that was less predictable than this, arguably less
25 predictable. The claims included many inoperable species. In re Angstadt

1 said that was okay. It was -- you can test them in your determinant. It
2 doesn't work.

3 Now, the claims under -- every claim in this case on appeal --
4 none of them -- I'm sorry -- none of them include any inoperable species
5 because the superconducting current is flowing in the -- so it doesn't include
6 any inoperable species.

7 Now, I did that because I wanted to avoid the argument that
8 there are lots of inoperable species. That's not an argument in this case. The
9 -- plus there is other issues. The initially filed claims were composition of
10 matter claims which were rejected as being anticipated over references
11 which are cited -- two references which are cited in the patent application
12 because they are either the same or almost identical and they were re -- the
13 claims that were presented were composition of matter with a limitation that
14 they had a high Tc property.

15 Well, that's inherent so you can't claim that. But if the
16 compositions existed, they had to be enabled. And part of what I tried to do
17 in the way I presented this Appeal Brief, and it is cumbersome, and there are
18 places where I repeat, unfortunately. I'm sure you found that tedious.

19 The -- I tried to trace out what it is that those people who came
20 up with other species actually did and why. What led them to it.

21 Well, in my view what led them to it was the -- their initial
22 disclosure, plus the fact that there are the other superconducting materials
23 which have Tc's less than 26 degrees, have atomic constituents, many of
24 which are in these other species.

1 So a person of ordinary skill in the art when they looked at
2 Newman [sic, Mueller's] and Bednorz's initial species, would look to the
3 other work that was done and say, well, let's take one of those atoms from
4 one of the ones that's less than 26 degrees, put it in here and see if we get a
5 high Tc superconductor.

6 So that was one way of their perovskites, that's a certain crystal
7 structure, they are layered perovskites, they are mixed valent, all of these
8 properties were identified by the inventors because intuitively that's how
9 they understood what was going on and that's the game plan that they laid
10 out for the many, many, thousands of people who went on and worked on
11 this stuff and within about 18 months there was more work done on this
12 product than anything of any other kind.

13 And the Poole book says one of the reasons was because you
14 don't have to understand the chemistry. The chemistry is complex but you
15 don't have to understand it. It is distinguishable, say, from the organic
16 chemistry.

17 In organic chemistry, you really don't know clearly when you
18 have one chemical reaction whether or not something else which is
19 somewhat similar is really going to react chemically the same. And you
20 may not be able to actually make the other species in order to do the testing.

21 That's another issue I wanted to -- this is on the theory of being
22 theoretically predictable because the Examiner has raised that on numerous
23 times. He kept on saying that.

24 In the solid state sciences, you could have a theory which is so
25 well-developed that you could show that a particular composition has a

1 crystal structure which is stable and could exist but you may not know how
2 to make it. Because how to make it is the chemistry of it. Whether or not it
3 is stable is the physics of it and it is solving a mathematical problem.

4 But if you were 100 percent -- you had a 100 percent accurate
5 theory and you could say this should be a high Tc superconductor, this high
6 Tc, but if you don't know how to make it, you have not enabled it.

7 So there is a 100 percent theoretical predictability and have no
8 experimental determinability and under the law I feel that you should -- you
9 are not enabled under the case law the way it is -- now, this is sort of a subtle
10 or maybe a different view that I think is customary, and I'll agree with that,
11 but I think it is right.

12 JUDGE GARRIS: Let me respond to that in this way. It seems
13 to me the point that we ought to be looking at and have not yet during our
14 discussions this afternoon is the issue of what amount of experimentation is
15 undue. And with that in mind, let's look at one of your claims for a point of
16 reference.

17 Let's look at claim 88, which recites, in part, "an apparatus
18 comprising a composition exhibiting a superconductive state at a
19 temperature greater than or equal to 26 degrees Kelvin."

20 That's a very broad claim in terms of the composition
21 component of it. It doesn't define the composition in any way other than by
22 its superconductive --

23 DR. MORRIS: Right.

1 JUDGE GARRIS: -- characteristics and, therefore, my
2 question to you is what -- what aspects of your specification disclosure
3 enable this claim to be practiced without undue experimentation.

4 DR. MORRIS: The real argument is based upon the way I have
5 read the cases and the way I have applied them in the brief. If there -- my
6 understanding of the case is if there is reason -- if the Examiner or if the
7 Board in its opinion proposes reasons to doubt that somebody could make a
8 composition which comes within the scope of this claim, then -- and if I
9 can't rebut that, the Applicant can't rebut that, then it is not enabled.

10 JUDGE GARRIS: Let me stop you for a moment --

11 DR. MORRIS: Right.

12 JUDGE GARRIS: -- because I'm not sure the way you phrased
13 that is something I can agree with. And I believe the Examiner made this
14 point, too.

15 What we are looking for with respect to a claim like this is a
16 degree of enablement that is commensurate with the scope of the claim itself
17 and so we want a broad disclosure that broadly enables one skilled in the art
18 to make and use compositions to such an extent that the person can make
19 any composition which exhibits this property without undue
20 experimentation.

21 DR. MORRIS: I understand the point you are making.

22 JUDGE GARRIS: What is, then, in your specification that
23 enables one skilled in this art to make this composition without -- and I
24 emphasize now the phrase "undue experimentation"?

1 DR. MORRIS: I understand the question. Now, I'll answer this
2 first by if we were -- this claim probably has a dependent claim on it that
3 says wherein the composition is made using all known principles of ceramic
4 science.

5 If, after Bednorz and Mueller made their discovery, I feel that
6 every ceramic material was obvious to try to see if it had this
7 superconducting property, number one. Part of the reason is nobody before
8 had shown that a ceramic material was superconductive when it was not
9 under pressure.

10 There was other work earlier which showed they took a ceramic
11 material and it was under heavy pressure, intense pressure, when it would
12 change from a ceramic into a metal under the pressure. So it really was a
13 metal. But these people were first to show that a ceramic material was
14 superconductive.

15 Nobody would have thought that a ceramic would have been
16 superconductive because they are insulators at normal temperatures. The --
17 which is on the opposite end of being a superconductor. The -- after they
18 made the discovery, this sort of -- I feel everyone would have thought that,
19 well, any ceramic material is now a potential candidate for being a
20 superconductor. Nobody has ever tested it.

21 And many of these things are -- have already been made
22 previously. There are thousands, many -- maybe hundreds of thousands of
23 ceramic materials made for all sorts of other purposes never tested for
24 superconductivity. Every single one of them is an obvious-to-try candidate

1 and there is no -- there is no issue of whether or not you can make them or
2 test them. The only issue is which one to choose.

3 Now, the way I'm going to look at this to try to answer your
4 question is -- now, let me -- now, let us suppose there is some species which
5 can't be made with -- by the all known means of ceramic sites. I'm not
6 aware that there is one that anybody has identified. Then, legitimately, the
7 fact we knew that that existed, this claim would -- could not be enabled
8 because this would include within its scope a species which couldn't be
9 made by the teaching of the Applicants.

10 But the Examiner has not identified any and so if -- I'm not
11 aware that anybody has identified any, so that -- now, if this claim were
12 allowed in this way, when it got issued, let's suppose somebody found one,
13 what happens then -- and this claim -- to try to assert this claim against them
14 -- In re Hogan, which is a CCPA decision, addresses this issue.

15 Before the fact, you don't know in a situation like this whether
16 or not there is some species which can't be made. That case argues that the -
17 - that's not -- because you don't know is not a reason to find lack of
18 enablement.

19 If the claim is allowed to issue and that kind of species is found
20 and somebody tries to assert the claim against that or even against something
21 else, that species could then be cited against the claim and it would be cut
22 out by the reverse doctrine of equivalents because it would not work in the
23 same way.

24 So that's the way In re Hogan says that issue should be
25 addressed, that in the absence of reason to doubt, some factual reason to

1 doubt or some evidence, some argument or some evidence, that there is no
2 basis for finding it not enabled.

3 JUDGE GARRIS: Well, let's talk about another component
4 that is raised by this issue we are discussing now, which is, what you said
5 before, how do you choose which to try. You know how to make it, you
6 know how to test it for superconductivity, that leaves the issue of how do
7 you make a choice as to which composition should, in fact, be made and
8 then tested. You said a moment ago, well, everything, it is now obvious to
9 try, and that implies that there is no degree of experimentation that is undue.
10 Is that your position here?

11 DR. MORRIS: Well, I'll answer and refer -- there is a non-
12 precedential Board decision called ex parte Chen, which I refer to in the
13 brief, and that being non-precedential, it, obviously, is not a binding
14 decision, but this was a biochemistry -- bio -- one of these molecular biology
15 inventions where there was -- I think it is -- I would have to go look -- I
16 think there was a 1 percent success rate in finding successful -- whatever
17 they were looking for -- I think it was microorganisms.

18 That Board panel found that that was not evidence of
19 nonenablement because this is what people in that field do.

20 Trial and error testing is the standard procedure that they go
21 through. So that was not undue because they always do a lot of that kind of
22 stuff so it is not undue.

23 And there is -- there are -- there is another case, this is the case
24 with the optical lens, the 12X -- I think it is -- Cook, In re Cook, where they
25 did find it not enabled in that case, that's the CCPA, but that case says there

1 was a lens design where you had a multi-component system for, I think,
2 making a 12X lens or something like that.

3 Now, these are very complicated to do because I have worked
4 on inventions of this type. I worked in, like, research, and they had a
5 lithography program, a big lithography program, very, very complicated
6 stuff to do. It says it could take months or years to work out some of these
7 things but even though it could take that long doesn't mean that it is not
8 enabled because there is a procedure that these people knew how to go
9 through at that time to find out the right combination of lens components in
10 order to achieve this result that they were trying to achieve.

11 Now, they found it not enabled for other reasons but not for that
12 reason. So that to answer the question that you are saying, that was almost
13 like an unlimited amount of experimentation.

14 And I think Judge Rich wrote that case, that opinion. It was
15 like an almost -- and I cite the language in the Brief. If you want, I could
16 find it, the -- that was almost like an unlimited amount of experimentation
17 that was not considered undue because you knew how to do it. So long as
18 you know how to do it, it would seem, based on that case, so long as you
19 know how to do it, doesn't matter how long it takes you, you know how to
20 do it.

21 Now, in the Board's precedential decision in Ex parte Jackson,
22 which dealt with a biotechnology case where they -- the Board found
23 nonenablement, in that case it was one of these situations where three strains
24 of bacteria were found and they were put on deposit because they didn't
25 know how to make them.

1 They had a certain property for making, I think, some kind of
2 protein and they created a genus and tried to claim the genus of these
3 microbiology -- these bacteria. The -- it was found not enabled because they
4 didn't know how to make other ones and there was no way of knowing how
5 to find it. You had to turn a rock over and see if their test -- test the dirt to
6 see if it was there or look on a leaf in a tree.

7 So there there was -- there there was infinite searching, I
8 suppose, was -- the Board found to be not enabled in that instance. Here I'm
9 not certain that it is the same thing because -- and I think in that Ex parte --
10 Ex parte Jackson decision, they make this distinction that there are certain
11 cases that apply to the chemical practice which may not apply to the
12 biological practice, one, the In re Angstadt and In re Geerdes, I think -- I
13 don't know if I'm pronouncing that right -- but -- and the reason appeared to
14 be because you knew how to make the chemicals but you didn't know how
15 to make the bacteria in that instance, so it is how to make -- because the
16 statute says, "how to make and use."

17 If you don't know how to make it, you make this one, you test
18 it, you make another one, you test it, you make another one, you test it, you
19 know how to do it. It is an infinite amount of work, yes, to test everything.

20 Getting back to claim 88, which you were referring to, this
21 claim has very broad language in that very first -- and I come back to the
22 point that presumably this would include -- because there are claims would
23 say -- there is probably a dependent claim off this -- that says all known
24 principles of ceramic science.

1 If there is such a dependent claim -- because some of them don't
2 have -- all of them don't have that dependency but some do. But let's
3 suppose this one did have that. Then by claim differentiation, one could say
4 that there is something that it captures which can't be made by all known
5 principles of ceramic science.

6 Now, of course, I'm arguing against myself here. I'm being fair.
7 That kind of an argument conceivably is -- could be made, I would think, to
8 say that you are trying to capture something that's not done by ceramic
9 science, you know, whatever that is, but --

10 JUDGE GARRIS: I think to be fair, however, the Examiner's
11 characterization of the nonenablement rejection that is before us really does
12 focus on what the Examiner believes to be undue experimentation in order to
13 assess what compositions, in fact, would exhibit this property.

14 DR. MORRIS: You are right.

15 JUDGE GARRIS: And so we get back to the issue that I had
16 raised earlier.

17 DR. MORRIS: Let me address that again because maybe I
18 wasn't -- my argument wasn't convincing. I think that what we have seen
19 happen, because this case has pended so long, a lot has happened, and it's
20 been pending so long because there have been a lot of issues that have been
21 addressed and are not before you. Many, many other things. It could have
22 been a lot worse. So a lot of things have happened but what has happened
23 follows exactly what is consistent with the Applicants' teaching.

1 So I think the Examiner, in limiting it only to those types of
2 species which are the specific examples by Applicant, is inconsistent with
3 what persons of ordinary skill in the art have done.

4 There has been no showing by the Examiner that in order to
5 achieve any of those other species, any invention was needed, additional
6 invention, and the affidavits that I -- that have been submitted by -- for the
7 Applicants state that they were made -- there is no invention in how they
8 were made.

9 And in the affidavits -- they are called DST affidavits, there is
10 three of them which are essentially same, very extensive in detail, cite some
11 of the published literature, the first published literature of some of those
12 other species, and they are made in exactly the same way as the Applicants -
13 - he is going to start with different constituents but the same process is used
14 to make it. There is no invention in making those things.

15 It is a question, I suppose, of if you try something because you
16 think it is a good candidate, based on intuition and based on what the --
17 following what the Applicants here had said the direction that they said to
18 look in, if you do that, have you enabled it?

19 I think In re Fisher says it is. In re Fisher says that if it is based
20 in some way on the -- the earlier applicant's work, that applicant is entitled
21 to dominate the inventions of others, the later people who discover other
22 things.

23 These other people who discover these other things may be
24 entitled to a patent on these other species because of unexpected results. I
25 think the -- the patent law has this subtle peculiarity in it which I tried to

1 identify which I don't think we necessarily think through all the time, and In
2 re Fisher, I think, captures it, that you can enable something that you don't
3 know specifically such that a claim -- somebody else could discover
4 something that comes within the scope of your claim, because it is
5 unexpected, they can get a patent on it but it still comes within the scope of
6 your claim and the fact that that's been found doesn't render your earlier
7 issued genus claim not enabled because you did enable it, it was made
8 exactly the same way or it followed the teaching.

9 You may have -- in the case that we are talking about, you do a
10 lot of work. I tried this one, it doesn't work; I tried this one, it doesn't work;
11 I tried that one and it works. The guy who finds the one that works may be
12 entitled to a patent to that species but that doesn't mean that the inventors
13 here who laid the plan out of where to look are not entitled to a genus claim
14 that captures those because that's what In re Fisher says.

15 JUDGE GARRIS: Well, let's talk about what your Appellants
16 have laid out that provides some degree of guidance as to how one skilled in
17 the art would develop an apparatus like the type required by claim 88.

18 DR. MORRIS: I'll answer that question.

19 JUDGE GARRIS: You've talked about a number of properties
20 that are possessed by the super- conductive compositions that are disclosed
21 and they include a layered structure, a multivalent transition and things of
22 this nature, particular crystalline structure; however, I guess my question to
23 you would be you have a lot of claims here --

24 DR. MORRIS: Yes.

1 JUDGE GARRIS: -- and I see that many of them are directed
2 to those -- to compositions that display --

3 DR. MORRIS: Yes.

4 JUDGE GARRIS: -- those properties. Claim 88 does not --

5 DR. MORRIS: Specifically refer to the properties that the
6 Inventors said that they would have. They obviously want narrower than
7 this particular claim 88.

8 JUDGE GARRIS: Right. And so my question is what
9 guidance in your specification gives to this field a breadth such that all
10 compositions are enabled as long as they possess this degree of
11 superconductivity.

12 DR. MORRIS: Well, the answer I would give to that is what I
13 had -- well, first, the guidance. My understanding of the use of the term
14 "guidance," this is another one of those terms which is sort of -- has an, I
15 think, uncertain meaning to many people. I have looked through many cases
16 to try to understand what does "guidance" mean. What I have concluded
17 from reading all these cases, that what "guidance" means is when you
18 haven't actually enabled something and you lay out some direction in order
19 to instruct those of ordinary skill in the art what needs to be done, that's
20 guidance which gets you over the hump of nonenablement.

21 You have enabled it because you have given guidance in how to
22 do the undue experimentation. You -- if you didn't give that additional
23 information, the experimentation would be undue but because you -- you
24 said how you think it should be done, that's guidance which results in

1 enablement. There are cases which say that. I think In re Wands says that
2 pretty explicitly.

3 The -- so, now, I think in what you are asking is, say, the
4 context of this very broad claim 88. What I get back to is In re Hogan again.

5 In re Hogan states that there has to be some reason to doubt --
6 I'm not aware that there is somebody who has made a superconducting
7 compound not by the principles of ceramic science which were known prior
8 to Applicants' discovery.

9 The -- now, this claim clearly is broadly enough stated that it
10 would capture something which could not be made by the principles of
11 ceramic science known when this application was filed. But it doesn't mean
12 that there is one that will ever be discovered when you say that.

13 In re Hogan answers that question but I think the language in
14 some of these older decisions was rejections for undue breadth, which the
15 CCPA seemed to not endorse that type of -- that's too broad. They -- in their
16 cases they say, well, what's the reason for why you doubt that somebody can
17 make a species that comes within that language, what -- what's -- something
18 -- you have got to say something. You can't just say nothing. You just can't
19 say it is too broad.

20 Now, maybe those cases are not good law, and I'm not aware of
21 any CAFC cases reversing any of those cases. The -- so that this claim,
22 given as broad as it is -- the Examiner didn't give an example of a species
23 that comes within the scope of this claim which can't be made following
24 Applicant's teaching.

1 So that following those -- like, In re Angstadt, following those
2 cases, there is no objective evidence provided by the Examiner for why this
3 claim is not enabled.

4 JUDGE GARRIS: I think the Examiner's position of a
5 nonenablement is not based on an inability to make these compositions.

6 DR. MORRIS: No, I agree.

7 JUDGE GARRIS: I think his position is based on an inability
8 to make compositions having this degree of superconductivity without undue
9 experimentation. And he would argue it is undue because there -- you don't
10 know.

11 You don't have any reasonable expectation that a particular
12 composition falling within the scope of claim 88 would, in fact, possess the
13 superconductivity property required by claim 88 until you test it.

14 DR. MORRIS: Right. Now, this claim -- every claim will only
15 include within the scope something that works.

16 JUDGE GARRIS: That part we know.

17 DR. MORRIS: Right. So that -- so this would be a
18 composition which is vastly different, say, than the ceramic materials which
19 might come into existence at some time which would fall within the scope of
20 this claim.

21 Now, the -- I think In re Hogan supports this -- this analysis that
22 -- of course, we are speculating what might happen or what it might be.
23 That's why we have the reverse doctrine of equivalents.

24 If whatever that is that may come into the existence in the
25 future isn't made following the same sort of procedure, the same -- same

1 doctrine of equivalents standard, the reverse doctrine of equivalents will
2 exclude it from this claim.

3 JUDGE GARRIS: I don't think that's related to the point I was
4 making earlier.

5 DR. MORRIS: No. Right. No, because that's also -- that is an
6 infringement argument, it is not a patentability argument. You are talking
7 about more of a patentability.

8 My feeling about what the Examiner has said is that the
9 Examiner is unwilling to find enabled something that requires experimental
10 work in order to -- trial and error experimental work, that the Examiner is of
11 the view that there is no theory, at least as of the time that this application
12 was filed, that would have been sufficient to predict.

13 My argument in rebuttal to his -- that statement is that the
14 theory, if it existed, would require as much work as doing the experiment,
15 that a theory doesn't help you in this setting because the work to do the
16 theory is extremely difficult and it may be easier to make -- first of all, you
17 have to first figure out what crystal structure of a particular set of atoms is
18 going to be stable.

19 You have got to do that calculation first, and then after you do
20 that calculation, you then, with those atoms in the various positions and
21 spacings, run the calculation to determine its electrical properties.

22 So there is a first -- there is two problems. When you do an
23 experimental thing, you throw all this stuff -- these people know their stuff
24 so well, they throw all these inorganic materials in a crushed-up sort of --
25 they go get some rocks, crush them up, they got the right amount of the

1 constituents, you know, in the total mix and they just heat this stuff up and
2 push and push and push and it eventually falls into the stable crystal
3 structure.

4 That's the way it is done. So that they know they can make it. I
5 mean or if it is not stable, it is not going to be made. It just won't be
6 produced if it is not stable.

7 The -- so the only -- in response to your argument, clearly this
8 claim captures -- potentially could capture things which can be made
9 following Applicants' teaching but I'm not aware that any exist and I think --
10 I think that that is necessary for a proper rejection for lack of enablement --
11 some reason to doubt.

12 The reason to doubt that you are saying that the Examiner is
13 giving is that it is so broad, that it captures so many things, that it would take
14 so much work to test all those things and that's undue.

15 JUDGE GARRIS: I think that's a fair statement of the
16 Examiner's position.

17 DR. MORRIS: Right. And in some sense that --

18 JUDGE GARRIS: So how you do you respond to that?

19 DR. MORRIS: Well, in some sense, that's similar to what the
20 Board in its precedential decision Ex parte Jackson said about looking for
21 the bacteria, that you don't know -- you can't make it and you don't know
22 where to look for it so you would have to look everywhere. Well, then, that's
23 undue.

24 So there is sort of an analogy. I think the difference -- the
25 difference here is at least with the materials that are described in this

1 application, the type of materials, you know how to make them. That
2 distinguishes it from the Ex parte Jackson. You don't know how to make
3 them in Ex parte Jackson, the bacteria. Here, you can. You can just keep on
4 making them, ceramic materials, forever.

5 Now, are you saying -- now, if an organic material, which is not
6 a ceramic, was found to be superconductive, in principle, that would come
7 within the scope of this claim, and you are raising the question of should you
8 be entitled to a claim that captures that is what you are, in part, suggesting.

9 Now, my answer is the reverse doctrine of equivalents, the In re
10 Hogan answer, because In re Hogan clearly said that it was impermissible to
11 reject a claim for undue breadth.

12 Now, I mean that's the answer that I have. I probably put this
13 claim in there after I read In re Hogan and said, well, that supports this
14 position.

15 JUDGE GARRIS: Sir, we have been here for about an hour
16 and so I think it is appropriate at this point for you to give us a summary in
17 the next five minutes or so.

18 DR. MORRIS: Yes, my position is -- I'll start with -- I have
19 repeated over and over again in most of the papers that -- that these materials
20 are made by all known principles of ceramic science so many times that
21 even if this -- this claim your talking about, 88, was allowed, prosecution
22 estoppel would probably limit it to all known principles of ceramic science.

23 It is hard for me to imagine that it would not be, even though
24 you could try to argue that. I think that ceramic materials is an area which is
25 really -- even though it is a chemistry, it is not the chemistry that we

1 ordinarily think of when you don't know if it is going to work or how to
2 figure up what else is going to work. This is an area you know how to make
3 the materials.

4 There are volumes and volumes of books with all sorts of made
5 materials. I've shown numerous previously existing materials on very
6 similar structure which were made which are similar to other high Tc
7 superconductors. There was no mystery.

8 When somebody wanted to go make other examples, they go
9 look in one of these books, see that this is the way they made this material,
10 let's try and put a -- in place of this metal atom, put copper in it or one of the
11 other transition metals and let's see if it is a superconductor.

12 Well, that's following Applicants' teaching. That should be
13 captured because I think In re Angststadt says that, In re Wands says that. I
14 think -- I think even In re Fisher supports that.

15 The -- so I think -- even though there is complicated chemistry
16 going on, you don't have to know that. In some sense, the problem -- I don't
17 know -- I have never spoken -- asked the Bednorz why they happened to
18 measure these materials. Somebody -- there were other people that made
19 similar materials. They didn't measure them for superconductivity. They
20 measured it and won the Nobel Prize and then they -- they -- then everything
21 else that was had to be -- that was made later was easy to make, no big -- no
22 big deal to make it. Just make it and test it.

23 So for that reason I think that the Applicants are entitled to the -
24 - the claims that are in this application because I truly believe that they have
25 enabled it.

1 JUDGE GARRIS: Judge Franklin, do you have any questions?

2 JUDGE FRANKLIN: No.

3 JUDGE GARRIS: Judge Gaudette?

4 JUDGE GAUDETTE: No.

5 JUDGE GARRIS: Dr. Morris, thank you. And thank you, Ms.
6 Morris, for coming in today.

7 DR. MORRIS: Thank you. Hopefully I answered the
8 questions effectively.

9 JUDGE GARRIS: You have been very helpful in this
10 extremely difficult and important case and we thank you for that.

11 DR. MORRIS: Well, yes. Right. Right. Thank you.

12 JUDGE GARRIS: Thank you, sir. And I hope you both have a
13 great afternoon.

14 Whereupon, the proceedings at 3:00 p.m. were concluded.